PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:		)	
		)	
Brian A. Leete		)	Examiner: Christopher E. Lee
		)	
Serial No.:	09/730,238	)	Group Art Unit: 2112
		)	
Filed:	December 05, 2000	)	Docket: 884.335US1
		)	
For:	POWER SUPPLY WITH BUS HUB)		

APPEAL BRIEF UNDER 37 C.F.R § 41.37

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on December 8, 2004, from the Final Rejection of claims 1-23 and 26-48 of the above-identified application, as set forth in the Final Office Action mailed on September 8, 2004.

The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 19-0743 in the amount of 500.00 which represents the requisite fee set forth in 37 C.F.R. § 41.2(b)(2). The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

APPEAL BRIEF UNDER 37 C.F.R § 41.37

TABLE OF CONTENTS

1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee, INTEL CORPORATION, a Delaware corporation doing business at 2625 Walsh Avenue, Santa Clara, CA 95051, in an assignment recorded on December 5, 2000 (Reel/Frame 011362/0819-0821).

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings known to the appellant which will have a bearing on the Board's decision in the present appeal.

3. STATUS OF CLAIMS

Claims 1-23 and 26-48 are pending in the application and are rejected. Claims 1-23 and 26-48 are being appealed.

4. STATUS OF AMENDMENTS

No Amendment has been filed by the appellant subsequent to the final Office Action dated September 8, 2004.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The following is a concise explanation of the subject matter defined in each of the independent claims involved in the appeal. Claim elements are identified at least once by reference character and by the page and line in the specification where the element may be found.

Claim 1 recites an apparatus including a housing (422, page 5, line 27), a power supply (410, page 6, line 1) enclosed in the housing, a bus hub (415, page 6, line 1) enclosed in the housing, the power supply being coupled to the bus hub to supply power to the bus hub, and a downstream receptacle (145, page 6, line 2) in the housing connected to both the power supply and the bus hub, the downstream receptacle being coupled to a cable (115, page 6, line 2) to couple power from the power supply and data signals from the bus hub to the cable and to receive power and data signals from the cable.

Claim 12 recites a computing unit (100, page 3, line 16) including a computer (110, page 3, line 17). The computer includes an upstream receptacle (130, page 3, line 21) to deliver data signals to the computer and a power receptacle (130, page 3, line 21) to deliver electrical power to the computer. The computing unit also includes a power hub (120, page 3, line 17) coupled to the upstream receptacle and the power receptacle via a cable. The power hub includes a housing, a power supply enclosed in the housing, the power supply being coupled to the cable to provide power to the computer, and a bus hub enclosed in the housing, the bus hub being coupled to the cable to receive power and data signals from the computer and the power supply being coupled to the bus hub to supply power to the bus hub.

Claim 21 recites a cable including a device power wire (210, page 4, line 3) to provide power from a computer to a power hub, a device ground wire (215, page 4, line 3), a computer power wire (220, page 4, line 3-4) to provide power from the power hub to the computer, a computer ground wire (225, page 4, line 4), and a plurality of signal wires (205 and 206, page 4, line 3) to carry data signals between the computer and the power hub.

Claim 29 recites an apparatus including a housing, a power supply enclosed in the housing, the power supply being coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power, a bus hub enclosed in the housing, the bus hub being coupled to the power supply to receive DC power from the power supply, and a downstream receptacle in the housing connected to both the power supply and the bus hub, the downstream receptacle being coupled to a cable to couple DC power from the power supply and data signals from the bus hub to the cable and to receive DC power and data signals from the cable.

Claim 39 recites a computing unit including a computer. The computer includes an upstream receptacle to deliver data signals to the computer and a power receptacle to deliver electrical power to the computer. The computing unit also includes a power hub coupled to the upstream receptacle and the power receptacle of the computer via a cable. The power hub includes a housing, a power supply enclosed in the housing, the power supply being coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power, the power supply being coupled to the cable to provide DC power to the computer, and a bus hub enclosed in the housing, the bus hub being coupled to the power supply to receive DC power from the power supply and to the cable to receive power and data signals from the computer.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1 to 4, 7, 11, 12, 16, 17, 19, 28 to 32, 39, and 41 to 43 stand rejected under 35 USC §103(a) as being unpatentable over Herwig (U.S. 6,701,192 B1) and Flannery (U.S. 5,799,196 A).

II. Claims 5, 20, 33, and 44 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and USB Specification 1998 (Universal Serial Bus Specification published by Compaq, Intel, Microsoft and NEC, Rev. 1.1, September 23, 1998).

III. Claims 6, 18, 34 to 36, and 45 to 47 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and Urade et al. (U.S. 6,272,644 B1, Urade).

IV. Claims 8 and 38 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang et al. (U.S. 6,253,329 B1, Kang) and Tsai (U.S. 6,283,789 B1).

V. Claim 9 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang, Tsai, and Decuir (U.S. 5,781,028 A).

VI. Claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang, Tsai, and Sanchez (U.S. 6,446,867).

VII. Claims 13 and 40 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and Tsai.

VIII. Claim 14 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Tsai, and Decuir.

IX. Claim 15 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Tsai, and Sanchez.

X. Claims 21 to 23 stand rejected under 35 USC §103(a) as being unpatentable over Herwig and Tsai.

XI. Claim 26 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Tsai, and Decuir.

XII. Claim 27 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Tsai, and Sanchez.

XIII. Claims 37 and 48 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Urade, and Silverman et al. (U.S. 6,370,603 B1, Silverman).

7. ARGUMENT

The Applicable Law

All of the pending claims were rejected under 35 U.S.C. §103:

> "A patent may not be obtained...if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art."[1]

The MPEP states the following with regard to rejections under 35 USC § 103:

> "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. "[2]

The appellant respectfully submits that the rejections of claims 1-23 and 26-48 under §103 are improperly based on hindsight as the final Office Action has not provided clear and particular evidence of a suggestion or motivation to form the proposed combinations from the applied references. The applied references teach away from the proposed combinations. The final Office Action is also missing evidence of a reasonable expectation of success for each combination of references.

A Federal Circuit opinion states that the suggestion or motivation to combine references and the reasonable expectation of success must both be found in the prior art.[3]

Multiple Federal Circuit decisions emphasize the need for the PTO to furnish evidence in support of claim rejections. For example, the Federal Circuit addressed citation of "basic knowledge or common sense" in rejections in *In re Zurko*:

> "With respect to core factual findings in a determination of patentability, however, the Board [Board of Patent Appeals and Interferences] cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."[4]

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[1] 35 U.S.C. § 103(a).
[2] MPEP 2143.
[3] MPEP 2143 citing *In re Vaeck*, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).
[4] *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001).

The Federal Circuit has particularly emphasized the need for the PTO to furnish evidence in support of claim rejections under 35 USC § 103 in *In re Lee*:

> "When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness.....The factual inquiry whether to combine references must be thorough and searching....It must be based on objective evidence of record." [5]

The Federal Circuit stated that the "need for specificity pervades this authority" requiring a teaching, motivation, or suggestion to select and combine references.[6] The Federal Circuit has expressed this need for specificity in several cases:

> "[T]he best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.....the showing must be clear and particular." [7]

> "[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination."[8]

> "[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."[9]

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[5] *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).
[6] *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).
[7] *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).
[8] *In re Rouffet*, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).
[9] *In re Kotzab*, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

Rejections

I. Claims 1 to 4, 7, 11, 12, 16, 17, 19, 28 to 32, 39, and 41 to 43 stand rejected under 35 USC §103(a) as being unpatentable over Herwig (U.S. 6,701,192 B1) and Flannery (U.S. 5,799,196 A).

Representative of the rejected claims, claim 1 recites an apparatus, comprising, among other elements, a housing, a power supply enclosed in the housing, a bus hub enclosed in the housing, the power supply being coupled to the bus hub to supply power to the bus hub, and a downstream receptacle in the housing connected to both the power supply and the bus hub.

The final Office Action has not cited clear and particular evidence of record in support of a motivation to modify Herwig according to Flannery as is required by *In re Dembiczak* and *In re Lee,* and has not cited evidence of a reasonable expectation of success of the proposed combination of Herwig and Flannery as is required by *In re Vaeck* and *In re Lee.*

Herwig relates to a wiring hub for a retail terminal.[10] Herwig shows a wiring hub 100 including a housing 110, a USB hub interface 114, and a power supply 112. Herwig does not show a connection from power supply 112 to the USB hub interface 114. The final Office Action states that "Herwig does not expressly teach said power supply [112] being coupled to said bus hub [114] to supply power to said bus hub."[11] This can be seen in Fig. 3 of Herwig.

Flannery relates to a self-powered USB device.[12] Flannery shows in Figure 1A a USB host 100 that has its own power supply 118 and a remote hub 104A that has its own power supply 108.

The USB hub interface 114 of Herwig and the remote hub 104A of Flannery are each consistent with the following description of a USB device from the USB Specification 1998:

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[10] Herwig, abstract.
[11] Final Office Action, page 3.

> "Each USB segment provides a limited amount of power over the cable. The host supplies power for use by USB devices that are directly connected. In addition, any USB device may have its own power supply. USB devices that rely totally on power from the cable are called bus-powered devices. In contrast, those that have an alternate source of power are called self-powered devices. A hub also supplies power for its connected USB devices."[13]

According to the USB Specification 1998, a USB device either receives power from a host through the USB cable, or has its own power supply. The remote hub 104A of Flannery has its own power supply 108. In fact, Flannery has a consistent description of the USB system.[14] The USB hub interface 114 of Herwig does not show an internal power supply, but one skilled in the art would understand that the USB hub interface 114 would get its power from a host or from its own internal power supply as described in the USB Specification 1998. Herwig has a priority date of 13 September 2000, well after the publication of the USB Specification 1998, and one skilled in the art would conclude that the USB hub interface 114 of Herwig conforms to the USB Specification 1998.

The final Office Action states that:

> "it would have been obvious....to have included said apparatus of providing power management, as disclosed by Flannery, to said apparatus, as disclosed by Herwig, so as to provide a superior solution to supplying the power needs of suspend/resume capabilities in a computer without the inefficiencies of a dual-stage power supply unit or the expense of incorporating both low-power and full-power units (See Flannery, col. 2, line 62 through col. 3, line 2) with the advantage of being able to supply 500mA to each downstream device (e.g., printers and speakers) attached to said bus hub (See Flannery, col. 4, lines 50-64)."[15]

The final Office Action proposes as the motivation for the combination the above text from the Summary of Flannery. However, Flannery only shows electronics internal to a USB host and a USB remote hub. Flannery's claimed advantages arise from these electronics internal to the USB system shown and described by Flannery. One skilled in the art would not be motivated by Flannery to couple the power supply 112 to the USB hub interface 114 of Herwig because the power supply 112 is outside the USB system shown in Herwig. The final Office Action has not shown how such a coupling in Herwig

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[12] Flannery, Title.
[13] USB Specification 1998, Section 4.3.1, page 18.
[14] Flannery, col. 3, line 52 to col. 4, line 64.

would bring the benefits claimed by Flannery. According to the USB Specification 1998, the USB hub interface 114 of Herwig would get its power from a host or from its own internal power supply, not the power supply 112.

The final Office Action has not cited clear and particular evidence of record in support of this motivation to modify Herwig according to Flannery as is required by *In re Dembiczak* and *In re Lee.* The final Office Action is improperly using hindsight in combining Herwig and Flannery contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig and Flannery as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claims 1 to 4, 7, 11, 12, 16, 17, 19, 28 to 32, 39, and 41 to 43 has not been established in the final Office Action. Reversal of the rejection of claims 1 to 4, 7, 11, 12, 16, 17, 19, 28 to 32, 39, and 41 to 43 under 35 U.S.C. §103 is respectfully requested.

II. Claims 5, 20, 33, and 44 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and USB Specification 1998.

The final Office Action has not cited clear and particular evidence of record in support of a motivation to modify Herwig according to Flannery and USB Specification 1998 as is required by *In re Dembiczak* and *In re Lee.*

Representative of the rejected claims, claim 5 is dependent on claim 1 and recites that the bus hub is bus powered.

The final Office Action states that:

> "Herwig....does not expressly teach said bus hub is bus powered. The Examiner takes Official Notice that said bus hub is bus powered...as evidenced by USB Spec....it would have been obvious....to have included said bus powered bus hub in said apparatus since it would allow power being always available to said bus hub."[16]

The motivation for modifying Herwig from USB Specification 1998 quoted above

[15] Final Office Action, pages 3-4.
[16] Final Office Action, page 9.

is contrary to the motivation in the final Office Action for combining Herwig with Flannery discussed in section I above. If the USB hub interface 114 of Herwig is bus powered according to the Examiner's Official Notice here, one skilled in the art would not be motivated to couple the power supply 112 to the USB hub interface 114 of Herwig. A bus powered USB hub does not need an additional source of power. The USB Specification 1998 does not provide a motivation for the combination of Herwig and Flannery, and in fact teaches away from the combination in the final Office Action as discussed above in section I. The final Office Action has not cited clear and particular evidence of record in support of this motivation to modify Herwig according to Flannery and USB Specification 1998 as is required by *In re Dembiczak* and *In re Lee.* The final Office Action is improperly using hindsight in combining Herwig, Flannery, and USB Specification 1998 contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, and USB Specification 1998 as is required by *In re Vaeck* and *In re Lee.* The final Office Action has not shown evidence of how the USB hub interface 114 of Herwig can be bus powered and be coupled to receive power from the power supply 112.

The appellant respectfully submits that a *prima facie* case of obviousness of claims 5, 20, 33, and 44 has not been established in the final Office Action. Reversal of the rejection of claims 5, 20, 33, and 44 under 35 U.S.C. §103 is respectfully requested.

III. Claims 6, 18, 34 to 36, and 45 to 47 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and Urade et al. (U.S. 6,272,644 B1, Urade).

The final Office Action has not cited clear and particular evidence of record in support of a motivation to modify Herwig according to Flannery and Urade as is required by *In re Dembiczak* and *In re Lee.*

Representative of the rejected claims, claim 6 recites a hub repeater connected to the upstream port.

Urade relates to a method of controlling a USB hub by a microcontroller.[17] Urade shows a USB Hub 11 in Figure 3 with a Hub Repeater 12. The final Office Action states that:

> "it would have been obvious....to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Herwig, as modified by Flannery, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port."[18]

Urade discusses the USB standard in the background, and the method described appears to be consistent with the USB standard. However, Urade does not provide a motivation for modifying Herwig in view of Flannery. The final Office Action has not identified clear and particular evidence of a motivation in Urade for the original modification of Herwig discussed above in section I as is required by *In re Dembiczak* and *In re Lee,* and therefore there is no clear and particular evidence of a motivation to combine Herwig, Flannery, and Urade. The final Office Action is improperly using hindsight in combining Herwig, Flannery, and Urade contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, and Urade as is required by *In re Vaeck* and *In re Lee.* The final Office Action has not shown evidence of how the USB hub interface 114 of Herwig can have the Hub Repeater 12 of Urade and be coupled to receive power from the power supply 112.

The appellant respectfully submits that a *prima facie* case of obviousness of claims 6, 18, 34 to 36, and 45 to 47 has not been established in the final Office Action. Reversal of the rejection of claims 6, 18, 34 to 36, and 45 to 47 under 35 U.S.C. §103 is respectfully requested.

IV. Claims 8 and 38 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang et al. (U.S. 6,253,329 B1, Kang) and Tsai (U.S. 6,283,789 B1).

The final Office Action has not cited clear and particular evidence of record in

[17] Urade, Abstract.
[18] Final Office Action, pages 9-10.

support of a motivation to modify Herwig according to Flannery, Kang, and Tsai as is required by *In re Dembiczak* and *In re Lee.*

Representative of the rejected claims, claim 8 recites that the cable further comprises a device power wire, a device ground wire, a computer power wire, a computer ground wire, and a plurality of signal wires.

Kang relates to a USB hub with a plurality of input power sources.[19] The final Office Action states that:

> "it would have been obvious....to have applied said plurality of input power sources, as disclosed by Kang, to said apparatus, as disclosed by Herwig, as modified by Flannery, so as said power supply to supply power to said bus hub for the advantage of providing said bus hub (i.e., USB hub) having a plurality of input power supplies (See Kang, col. 2, lines 3-10)."[20]

The applicant respectfully submits that, on the contrary, one skilled in the art would not be motivated to combine Herwig with Kang. Kang states that:

> "A circuit is constructed so that the user can select bus power or self-power as to the power source of the USB hub depending on the user's necessity. As a result, it is not necessary for the user to purchase a bus power USB hub or a self-power USB hub separately. The user who employs the present invention can easily select a power source supply method which fits his use by simply adding a power source cable for self-power."[21]

Kang and Herwig are clearly showing two different, unrelated devices. The USB hub of Kang can run from two different power sources to give the user more options. Kang does not show a power supply inside its USB hub, and all power is supplied from sources outside the device of Kang. The system of Herwig is a wiring hub for a retail terminal. The self-described advantage of Kang is not applicable to Herwig. One skilled in the art would not have been motivated to modify Herwig based on the showing of Kang. In fact, combining them would go against the teachings of one of them, because the desirable flexibility allowing use of Kang with separate power supplies "teaches away" from the apparatus in Herwig with its power supply and hub in the same enclosure.

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[19] Kang, Title.
[20] Final Office Action, page 11.
[21] Kang, column 5, lines 28-35.

Kang also does not provide a motivation for modifying Herwig in view of Flannery that is lacking in the final Office Action as discussed in section I.

Tsai relates to a data and power transmitting cable system.[22] The final Office Action states that:

> "it would have been obvious....to have implemented said cable, as disclosed by Herwig, as modified by Flannery and Kang, using said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is common sense to one of ordinary skill in the art of electronics wiring."[23]

The final Office Action has not cited clear and particular evidence of record in support of this motivation to combine Herwig, Flannery, Kang, and Tsai as is required by *In re Dembiczak* and *In re Lee.* The final Office Action cannot rely on common sense alone to support a rejection, as this is contrary to *In re Zurko.* The final Office Action is improperly using hindsight in combining Herwig, Flannery, Kang, and Tsai contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Kang, and Tsai as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claims 8 and 38 has not been established in the final Office Action. Reversal of the rejection of claims 8 and 38 under 35 U.S.C. §103 is respectfully requested.

V. Claim 9 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang, Tsai, and Decuir (U.S. 5,781,028 A).

Claim 9 depends from claim 8 discussed above, and recites that the plurality of signal wires further comprises a signal twisted pair.

Decuir relates to data bus termination,[24] and shows a twisted pair data cable 72 that permits bidirectional data communication between a USB interface in a computer and a USB peripheral device. The final Office Action states that:

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[22] Tsai, title.
[23] Final Office Action, page 12.
[24] Decuir, Title.

> "it would have been obvious....to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Flannery, Kang and Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7)."[25]

As discussed above in section IV, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, Kang, and Tsai, and Decuir does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, Kang, Tsai, and Decuir as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Kang, Tsai, and Decuir as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claim 9 has not been established in the final Office Action. Reversal of the rejection of claim 9 under 35 U.S.C. §103 is respectfully requested.

VI. Claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Kang, Tsai, and Sanchez (U.S. 6,446,867).

Claim 10 depends from claim 8 discussed above, and recites that the plurality of signal wires further comprises a fiber optic channel.

Sanchez relates to an electro-optic interface system[26] including a fiber optic cable 135. The final Office Action states that:

> "it would have been obvious....to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Flannery, Kang and Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise."[27]

As discussed above in section IV, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery,

[25] Final Office Action, page 12.
[26] Sanchez, Title.
[27] Final Office Action, page 13.

Kang, and Tsai, and Sanchez does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, Kang, Tsai, and Sanchez as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Kang, Tsai, and Sanchez as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claim 10 has not been established in the final Office Action. Reversal of the rejection of claim 10 under 35 U.S.C. §103 is respectfully requested.

VII. Claims 13 and 40 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, and Tsai.

Representative of the rejected claims, claim 13 recites the computing unit of claim 12, wherein the cable further comprises a device power wire, a device ground wire, a computer power wire, a computer ground wire, and a plurality of signal wires.

Herwig, Flannery, and Tsai are all discussed above. The final Office Action states that:

> "it would have been obvious....to have implemented said cable, as disclosed by Herwig, as modified by Flannery, using said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is a common sense to one of ordinary skill in the art of electronics wiring."[28]

The final Office Action has not cited clear and particular evidence of record in support of this motivation to combine Herwig, Flannery, and Tsai as is required by *In re Dembiczak* and *In re Lee.* The final Office Action cannot rely on common sense alone to support a rejection, as this is contrary to *In re Zurko.* The final Office Action is improperly using hindsight in combining Herwig, Flannery, and Tsai contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, and Tsai as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claims 13 and 40 has not been established in the final Office Action. Reversal of the rejection of claims 13 and 40 under 35 U.S.C. §103 is respectfully requested.

VIII. Claim 14 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Tsai, and Decuir.

Claim 14 is dependent on claim 13, and recites "the plurality of signal wires comprises a twisted pair."

Herwig, Flannery, Tsai, and Decuir are discussed above. The final Office Action states that:

> "it would have been obvious....to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Flannery and Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7)."[29]

As discussed above in section VII, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, and Tsai, and Decuir does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, Tsai, and Decuir as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Tsai, and Decuir as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claim 14 has not been established in the final Office Action. Reversal of the rejection of claim 14 under 35 U.S.C. §103 is respectfully requested.

IX. Claim 15 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Tsai, and Sanchez.

Claim 15 is dependent on claim 13, and recites "the plurality of signal wires

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[28] Final Office Action, page 14.
[29] Final Office Action, pages 14-15.

comprises a fiber optic channel."

Herwig, Flannery, Tsai, and Sanchez were discussed above. The final Office Action states that:

> "it would have been obvious....to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Flannery and Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise."[30]

As discussed above in section VII, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, and Tsai, and Sanchez does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Flannery, Tsai, and Sanchez as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Tsai, and Sanchez as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claim 15 has not been established in the final Office Action. Reversal of the rejection of claim 15 under 35 U.S.C. §103 is respectfully requested.

X. Claims 21 to 23 stand rejected under 35 USC §103(a) as being unpatentable over Herwig and Tsai.

Independent claim 21 recites a cable comprising a device power wire, a device ground wire, a computer power wire, a computer ground wire, and a plurality of signal wires. Claims 22 and 23 depend from claim 21.

Herwig and Tsai are discussed above. The final Office Action states that:

> "it would have been obvious....to have implemented said cable, as disclosed by Herwig, in said cable system, as disclosed by Tsai, for the advantage of providing a compact and clean wiring in said housing, which is a common sense to one of ordinary skill in the art of electronics wiring."[31]

[30] Final Office Action, page 13.
[31] Final Office Action, page 16.

The final Office Action has not cited clear and particular evidence of record in support of this motivation to combine Herwig and Tsai as is required by *In re Dembiczak* and *In re Lee.* The final Office Action cannot rely on common sense alone to support a rejection, as this is contrary to *In re Zurko.* The final Office Action is improperly using hindsight in combining Herwig and Tsai contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig and Tsai as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claims 21 to 23 has not been established in the final Office Action. Reversal of the rejection of claims 21 to 23 under 35 U.S.C. §103 is respectfully requested.

XI. Claim 26 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Tsai, and Decuir.

Claim 26 is dependent on claim 21, and recites "the plurality of signal wires comprises a twisted pair."

Herwig, Tsai, and Decuir are discussed above. The final Office Action states that:

> "it would have been obvious....to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7)."[32]

As discussed above in section X, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig and Tsai, and Decuir does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Tsai, and Decuir as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Tsai, and Decuir as is required by *In re Vaeck* and *In re Lee.*

[32] Final Office Action, page 17.

The appellant respectfully submits that a *prima facie* case of obviousness of claim 26 has not been established in the final Office Action. Reversal of the rejection of claim 26 under 35 U.S.C. §103 is respectfully requested.

XII. Claim 27 stands rejected under 35 USC §103(a) as being unpatentable over Herwig, Tsai, and Sanchez.

Claim 27 is dependent on claim 21, and recites "the plurality of signal wires comprises a fiber optic channel."

Herwig, Tsai, and Sanchez were discussed above. The final Office Action states that:

> "it would have been obvious....to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Herwig, as modified by Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Sanchez, col. 1, lines 57-60) without spreading electromagnetic noise."[33]

As discussed above in section X, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig and Tsai, and Sanchez does not supply a motivation for such a combination. Therefore, the final Office Action has not cited clear and particular evidence of record in support of a motivation to combine Herwig, Tsai, and Sanchez as is required by *In re Dembiczak* and *In re Lee.* The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Tsai, and Sanchez as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claim 27 has not been established in the final Office Action. Reversal of the rejection of claim 27 under 35 U.S.C. §103 is respectfully requested.

XIII. Claims 37 and 48 stand rejected under 35 USC §103(a) as being unpatentable over Herwig, Flannery, Urade, and Silverman et al. (U.S. 6,370,603 B1,

[33] Final Office Action, page 18.

Silverman).

Representative of the rejected claims, claim 37 recites that "the hub controller and the hub repeater comprise memory stored instructions executable by a processor or logic gates or a programmable logic device."

Herwig, Flannery, and Urade were discussed above. Silverman relates to a configurable USB controller.[34] The final Office Action states that:

> "it would have been obvious....to have included said configuration components...as disclosed by Silverman, in said hub controller and said hub repeater, as disclosed by Herwig, as modified by Flannery and Urade, for the advantage of providing an improved technique for effecting digital communications between said downstream devices....and systems using different communications protocols."[35]

Silverman does not provide a motivation for modifying Herwig in view of Flannery and Urade. The final Office Action has not identified clear and particular evidence of a motivation in Silverman for the original modification of Herwig in view of Flannery and Urade discussed above in section III as is required by *In re Dembiczak* and *In re Lee,* and therefore there is no clear and particular evidence of a motivation to combine Herwig, Flannery, Urade, and Silverman. Also, the above-quoted rationale for combining Silverman with the other references is very general and not specific to the technical description in Silverman, and is therefore not the clear and particular evidence required by *In re Dembiczak.* The final Office Action is improperly using hindsight in combining Herwig, Flannery, Urade, and Silverman contrary to *In re Dembiczak.*

The final Office Action has also not cited evidence of a reasonable expectation of success of the proposed combination of Herwig, Flannery, Urade, and Silverman as is required by *In re Vaeck* and *In re Lee.*

The appellant respectfully submits that a *prima facie* case of obviousness of claims 37 and 48 has not been established in the final Office Action. Reversal of the rejection of claims 37 and 48 under 35 U.S.C. §103 is respectfully requested.

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[34] Silverman, Title.
[35] Final Office Action, page 18-19.

Request For Reversal

For the foregoing reasons, the appellant respectfully submits that the rejections of claims 1-23 and 26-48 under 35 U.S.C. §103 were erroneous. Reversal of those rejections is respectfully requested, as well as the allowance of all the rejected claims.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

BRIAN A. LEETE

By his Representatives,

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Date 8 March 2005 By _____

Robert E. Mates
Reg. No. 35,271

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 8th day of March, 2005.

Amy Moriarty _____

Name Signature

CLAIMS APPENDIX

1. (Previously Presented) An apparatus, comprising:
a housing;
a power supply enclosed in the housing;
a bus hub enclosed in the housing, the power supply being coupled to the bus hub to supply power to the bus hub; and
a downstream receptacle in the housing connected to both the power supply and the bus hub, the downstream receptacle being coupled to a cable to couple power from the power supply and data signals from the bus hub to the cable and to receive power and data signals from the cable.

2. (Original) The apparatus of claim 1, wherein the bus hub further comprises an upstream port.

3. (Previously Presented) The apparatus of claim 1, wherein the bus hub comprises:
at least one downstream port to connect to at least one downstream device.

4. (Original) The apparatus of claim 1, wherein the bus hub is self powered.

5. (Original) The apparatus of claim 1, wherein the bus hub is bus powered.

6. (Original) The apparatus of claim 2, further comprising:
a hub repeater connected to the upstream port.

7. (Previously Presented) The apparatus of claim 1 wherein the power supply is coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power, the DC power being coupled to the downstream

receptacle and to the bus hub.

8. (Previously Presented) The apparatus of claim 1 wherein the cable further comprises:
a device power wire to provide power to the bus hub;
a device ground wire;
a computer power wire to provide power from the power supply to a computer;
a computer ground wire; and
a plurality of signal wires to carry data signals between the computer and the bus hub.

9. (Original) The apparatus of claim 8, wherein the plurality of signal wires further comprises a signal twisted pair.

10. (Original) The apparatus of claim 8, wherein the plurality of signal wires further comprises a fiber optic channel.

11. (Previously Presented) The apparatus of claim 1, wherein the power supply is coupled to a wire to receive alternating current (AC) power, the power supply to convert the AC power into direct current (DC) power.

12. (Previously Presented) A computing unit, comprising:
a computer comprising:
an upstream receptacle to deliver data signals to the computer; and
a power receptacle to deliver electrical power to the computer; and
a power hub coupled to the upstream receptacle and the power receptacle via a cable, wherein the power hub comprises:
a housing;
a power supply enclosed in the housing, the power supply being coupled to the cable to provide power to the computer; and

a bus hub enclosed in the housing, the bus hub being coupled to the cable to receive power and data signals from the computer and the power supply being coupled to the bus hub to supply power to the bus hub.

13. (Previously Presented) The computing unit of claim 12, wherein the cable further comprises:
a device power wire to provide power from the computer to the power hub;
a device ground wire;
a computer power wire to provide power from the power supply to the computer;
a computer ground wire; and
a plurality of signal wires to carry data signals between the computer and the power hub.

14. (Original) The computing unit of claim 13, wherein the plurality of signal wires comprises a twisted pair.

15. (Original) The computing unit of claim 13, wherein the plurality of signal wires comprises a fiber optic channel.

16. (Original) The computing unit of claim 12, wherein the bus hub further comprises an upstream port.

17. (Previously Presented) The computing unit of claim 12, wherein the bus hub further comprises:
at least one downstream port to connect to at least one downstream device.

18. (Previously Presented) The computing unit of claim 16, wherein the bus hub further comprises:
a hub repeater connected to the upstream port.

19. (Original) The computing unit of claim 12, wherein the bus hub is self powered.

20. (Original) The computing unit of claim 12, wherein the bus hub is bus powered.

21. (Previously Presented) A cable comprising:
a device power wire to provide power from a computer to a power hub;
a device ground wire;
a computer power wire to provide power from the power hub to the computer;
a computer ground wire; and
a plurality of signal wires to carry data signals between the computer and the power hub.

22. (Original) The cable of claim 21, wherein the cable further comprises:
an upstream plug to connect to both an upstream bus receptacle and a power receptacle, wherein the power receptacle draws electric power from the computer power wire.

23. (Previously Presented) The cable of claim 21, further comprising:
a downstream plug to electrically connect to both a downstream bus receptacle and a power receptacle, wherein the power receptacle is to supply electric power to the computer power wire, and wherein the downstream bus receptacle is connected to the device power wire, the device ground wire, and the plurality of signal wires.

24.-25. (Canceled)

26. (Previously Presented) The cable of claim 21 wherein the plurality of signal wires comprises a twisted pair.

27. (Previously Presented) The cable of claim 21 wherein the plurality of signal wires comprises a fiber optic channel.

28. (Previously Presented) The computing unit of claim 12 wherein the power supply is coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power, the DC power being coupled to the cable and to the bus hub.

29. (Previously Presented) An apparatus comprising:
a housing;
a power supply enclosed in the housing, the power supply being coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power;
a bus hub enclosed in the housing, the bus hub being coupled to the power supply to receive DC power from the power supply; and
a downstream receptacle in the housing connected to both the power supply and the bus hub, the downstream receptacle being coupled to a cable to couple DC power from the power supply and data signals from the bus hub to the cable and to receive DC power and data signals from the cable.

30. (Previously Presented) The apparatus of claim 29 wherein the bus hub further comprises a root port.

31. (Previously Presented) The apparatus of claim 29 wherein the bus hub further comprises a downstream port to be coupled to a downstream device.

32. (Previously Presented) The apparatus of claim 29 wherein the bus hub is self powered.

33. (Previously Presented) The apparatus of claim 29 wherein the bus hub is bus

powered.

34. (Previously Presented) The apparatus of claim 29, further comprising a hub repeater coupled between a root port and a plurality of downstream ports in the bus hub to manage connections to and through the bus hub, each downstream port to be coupled to a downstream device.

35. (Previously Presented) The apparatus of claim 34 wherein the downstream devices comprise one or more of a mouse, a speaker, a telephone, a keyboard, a joystick, a camera, a modem, a scanner, and a printer.

36. (Previously Presented) The apparatus of claim 34, further comprising a hub controller coupled to the hub repeater in the bus hub to route signals between the root port and the downstream ports and to perform error detection and recovery.

37. (Previously Presented) The apparatus of claim 36 wherein the hub controller and the hub repeater comprise memory stored instructions executable by a processor or logic gates or a programmable logic device.

38. (Previously Presented) The apparatus of claim 29 wherein the cable further comprises:
a device power wire to provide DC power to the bus hub;
a device ground wire;
a computer power wire to provide DC power from the power supply to a computer;
a computer ground wire; and
a plurality of signal wires to carry data signals between the computer and the bus hub.

39. (Previously Presented) A computing unit, comprising:

a computer comprising:

an upstream receptacle to deliver data signals to the computer; and

a power receptacle to deliver electrical power to the computer; and

a power hub coupled to the upstream receptacle and the power receptacle of the computer via a cable, wherein the power hub comprises:

a housing;

a power supply enclosed in the housing, the power supply being coupled to receive alternating current (AC) power to convert the AC power into direct current (DC) power, the power supply being coupled to the cable to provide DC power to the computer; and

a bus hub enclosed in the housing, the bus hub being coupled to the power supply to receive DC power from the power supply and to the cable to receive power and data signals from the computer.

40. (Previously Presented) The computing unit of claim 39, wherein the cable further comprises:

a device power wire to provide DC power from the computer to the power hub;

a device ground wire;

a computer power wire to provide DC power from the power supply to the computer;

a computer ground wire; and

a plurality of signal wires to carry data signals between the computer and the power hub.

41. (Previously Presented) The computing unit of claim 39 wherein the bus hub further comprises a root port.

42. (Previously Presented) The computing unit of claim 39 wherein the bus hub further comprises a downstream port to be coupled to a downstream device.

43. (Previously Presented) The computing unit of claim 39 wherein the bus hub is self powered.

44. (Previously Presented) The computing unit of claim 39 wherein the bus hub is bus powered.

45. (Previously Presented) The computing unit of claim 39, further comprising a hub repeater coupled between a root port and a plurality of downstream ports in the bus hub to manage connections to and through the bus hub, each downstream port to be coupled to a downstream device.

46. (Previously Presented) The computing unit of claim 45 wherein the downstream devices comprise one or more of a mouse, a speaker, a telephone, a keyboard, a joystick, a camera, a modem, a scanner, and a printer.

47. (Previously Presented) The computing unit of claim 45, further comprising a hub controller coupled to the hub repeater in the bus hub to route signals between the root port and the downstream ports and to perform error detection and recovery.

48. (Previously Presented) The computing unit of claim 47 wherein the hub controller and the hub repeater comprise memory stored instructions executable by a processor or logic gates or a programmable logic device.